The Maryland Fruit Grower

March, 1932

Maryland State
Horticultural Society

A Frank Talk on Codling Moth Control

By B. G. Pratt

Codling moth is gaining ground in the East in spite of heavier and a larger number of poison sprays, necessitating the washing of fruit to remove spray residue. We have counted 29 and 30 stings on apples whitewashed with arsenate of lead.

During the past 21 years, we have planted 20,000 apple trees and had 3,000 old trees leased for 11 years. We have never considered codling moth an economic factor—the worst infection not exceeding 2% in badly infested districts. In 1931, we had no more than ½ of 1% in either the older or younger orchards.

We have always followed our regular spray program of not over 4 poison sprays of 2 pounds to the hundred gallons. This year, 14 cars of our apples were exported, within arsenate tolerance, without even brushing.

We did not consider that our spray program was any more effective than others against codling moth until it was forced on our attention. One grower who tried two rows each of Bens and Jonathans right through his orchard wrote, "They have fewer worms by far than the other fruit with the same number of sprays of lime sulfur and bordeaux sprays."

Another grower who tried our complete spray program on his Golden Delicious orchard writes, "Clean as a pin, slick and waxy and not a wormy apple."

A Georgia grower who brought up his hundred acre orchard on our sprays writes, "It is worthy to note that we had no codling moth; every other orchard in this State is more or less infested."

If you have not solved the codling moth and spray residue question, don't you think our spray program worthy of a trial?

It costs no more, if as much, as other sprays.

A postal card to me, c/o B. G. Pratt Company, Department F., 50 Church Street, New York City, will bring full information and prices.

Maryland ◈ Fruit ◈ Grower

Published Monthly By

The Maryland State Horticultural Society

A. F. VIERHELLER, Editor

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WITH LOW PRICES PREVAILING, WHAT ORCHARD MANAGEMENT POLICY SHOULD WE FOLLOW THIS YEAR?

DR. E. C. AUCHTER

Principal Horticulturist, United States Department of Agriculture.

I imagine that some of you are anxious to know how far you can cut corners and reduce expenses this year without seriously hurting the orchard and crop. If it will console you any, I can honestly say that the growers in practically every other section of the country are asking these same questions. This is not much consolation, but it sometimes helps to know that others are in the same boat with us when we are attempting to navigate a new and somewhat unknown stream.

I believe we have gradually come to realize in most sections that the main way to reduce cost of production and make more net profit is to:

First, eliminate the poor or marginal orchards.

Second, increase the yield per tree of high quality (good size and color) fruit.

Third, to harvest and pack the fruit in the most economical way.

Fourth, to have sufficient storage facilities (either common or cold, as the case may be) to withhold part of the fruit from the market so that a better distribution of the fruit over a longer period will be made, which will tend to prevent gluts and result in a better price.

This means:

In the *first* case, to use the axe and tractor.

In the *second* case, to use the best methods of orchard management known in order to increase the growth of tree so that annual crops as nearly as possible o fhigh quality fruit will be produced.

In the *third* and *fourth* cases, to make additional capital investments for proper spraying machines or plants, proper cultural equipment, modern packing houses and common or cold storage facilities.

However, many of these recommendations, such as additional capital investments and increased operating costs per tree or acre cannot and probably should not be followed by many orchardists during the coming year, though they should be kept in mind as desirable as soon as economic conditions will permit.

The question, then, which confronts us under the present existing economic conditions is how best to cut operating or orchard management ex-

penses for the next year with the least harm to our orchards and still approach satisfactory yields of good fruit. As previously outlined this is a difficult subject to discuss generally speaking each individual orchard presents ficult subject to discuss because generally speaking each individual orchard presents a different problem and probably should be handled differently. Likewise, I imagine the financial condition of different growers is different and that some growers may be in position to continue with the best orchard practices during the coming year. In such cases, I feel that those growers should be very careful about attempting to radically change or decrease what appears to be sound orchard practice. In attempting to cut or reduce expenses we must be very careful that we do not actually increase the final cost per bushel through decreased yields of poor quality fruit.

However, there are many growers in several states who must cut some or all of their expenses during the coming year if they are to operate their orchards at all. It is the problems of such growers that I wish to discuss briefly and suggest some ways in which costs may be reduced without too serious or permanent consequences.

Tree Removal

A. If through changed conditions of transportation, storage facilities and heavier plantings in other regions, certain varieties have consistently been unprofitable for several years and especially if the trees are old, cut them out.

B. If you have young trees of what now promises to be an undesirable variety, either cut them out or top work them at once.

C. Remove all very weak, consistently light bearing or diseased trees. Thus make your boarders pay or cut them out.

D. We know that the relative profitableness of certain varieties has changed in recent years and that we have many individual trees in our orchards which are not paying their way. This is the time to stop talking and start acting in getting rid of them.

E. Remove at once, especially on the light soil types, all filler trees which need to be removed so that the permanent trees will receive more moisture and soil nutrients in the hope that their crops will be larger and of higher quality without the additional expense of fertilization, cultivation, etc., of the filler trees. In orchards planted so close that crowding is evident, at least cut out each alternate diagonal row leaving one-half as many trees or four on the square with one in the middle.

If you have too much acreage to care for properly, reduce it and grow properly and to its full capacity the remaining acreage. I mean by this that if a grower does not and cannot buy enough equipment and if he does not have sufficient capital to hire enough labor to properly take care of his total acreage, it will probably be better to reduce the acreage and spend the same amount of effort and money on the reduced acreage. The yield per tree and acre of high quality fruit will probably be increased and the total net returns larger.

Pollination

If orchards of one variety are planted in relatively large blocks, bring in blossoming branches of other varieties at blossoming time and place in tubs of water in order to insure satisfactory "sets" of fruit. Plan to top work or replant certain trees to handle this permanently.

Fertilization

A. If orchards are on fairly good soils, have been given moderate to liberal applications of nitrogen during the past four or five years and in addition if organic matter has been added yearly through cover crops, sod mulch or additional mulch so that the trees are vigorous as indicated by a good growth of spurs, trunks and terminals and color of foilage, it would seem that the amount of nitrogen to be applied under such conditions could be greatly reduced if not entirely eliminated for one year without serious consequence. This would be especially true with young orchards just coming into bearing or with older bearing orchards which seem unsually vigorous.

B. With orchards on lighter soils which have not been given especially good soil management treatments or sufficient nitrogen in the past, at least one-half or possibly two-thirds of the usual amount of nitrogen should be added unless a very light crop was expected. In such a case, at least one-fourth of the usual amounts should be applied unless unusually good cultivation and pruning practices were to be followed.

C. Make a study of young individual orchards. Possibly the application of nitrogen can be omitted or greatly reduced on certain varieties or blocks of trees while other varieties and blocks should receive the normal amount. This would be a good year to give more attention to the individual trees and not issue a blanket order for fertilization. Have your men "use their head" and reduce the amount per tree on the younger, replanted, or very vigorous individuals in the orchard and apply a little more to certain ones which appear to need it. In this way, the same amount of fertilizer used per orchard will be applied more intelligently and probably a more efficient use of it will be made.

D. We have some experimental evidence to show that trees do gradually build up a nitrogen reserve and that trees which have been fertilized well for a few years will continue to grow better for a year or two after applications of nitrogen are stopped than similar trees which have not previously been fertilized.

Soil Management

A. Those growers who practice a system of clean cultivation and cover crops in the orchard and who have been cultivating or disking six to eight times should plan to reduce the number of cultivations this year.

Preliminary experiments in some states indicate that if the orchard is plowed or disked early or at about the time the terminal buds are opening and if two or three additional early diskings are given the trees will grow very satisfactorily, have healthy foilage and produce good crops. In fact, fewer early cultivations seem to produce as desirable results as many more cultivations made later in the season.

Nitrification appears to proceed earlier and faster in the spring where the soil is cultivated. Loss of moisture by the growing cover crop is also prevented. We all recall that fruit spur growth is made very early in the season (two to three weeks after blossoming) and that terminal growth is completed about the first of July in most seasons. The need, then, for earlier cultivation is apparent and the cost per acre for the season can be reduced by the elimination of part of the cultivations if the work is done early.

B. A fairly good and uniform growth of volunteer weeds, or grass will

occur in some orchards when cultivation is stopped. It would seem unwise under such conditions to spend money for cover crop seed. The important thing is to get organic matter into the soil from the standpoint of improving its moisture holding capacity and general physical condition.

C. It would seem safe to omit the expense of buying seed, preparing the ground and sowing the cover crop *for one year* in those orchards in which the soil has a fairly high organic matter content. But it seems questionable if cover crops should be omitted on the relatively light soils where moisture is more liable to be the limiting factor. Use the cover crop which will give the greater amount of organic matter at the cheapest cost.

D. Under many conditions, as for instance, steep, stony or rough ground, it will no doubt be wise to seed the orchard down and reduce soil erosion and cultivation costs. Under more level and fertile conditions cultivation costs could be reduced at least temporarily by seeding down the orchard for a year or two but under such conditions it must be remembered that much more nitrogen per tree must be added if growth and production are to be maintained.

E. If a cheap supply of mulching material such as straw or cornstalks is available so that the ground can be well covered, this would probably be the cheapest and most satisfactory method of management to use as long as the cheap source of material is available. Experiments in several states show that moisture is well conserved by such a mulch and that if nitrogen is added to the trees, good results follow. Danger from both mice and fire is serious, however, under such conditions and care must be taken to prevent injury from these sources.

Pruning

A. Young non-bearing trees need relatively little pruning, just enough to form a good head and balance up the tree. Experiments have shown that such trees with more buds and leaves, grow faster, come into bearing earlier and produce larger crops.

B. Young bearing trees likewise need little pruning and costs could be reduced this year by doing only a little thinning out in such trees.

C. Older bearing trees normally respond better to a heavier pruning, consisting mainly of the removal of several small twigs and branches scattered uniformly over the tree. By such pruning, spur and terminal growth is usually stimulated, the set of fruit and new buds is increased and sunlight can better enter all parts of the trees.

D. In these older orchards especially if they are on good soils and is such pruning has been practiced for the past four or five years, it would seem that pruning costs could be decreased this year by omitting such detailed pruning. Water sprouts should be cut out; dead, diseased and broken limbs removed and only an occasional limb cut in the tops of the trees to allow more sunlight to enter. This should greatly reduce the cost of pruning.

E. The amount of pruning of old bearing orchards on relatively light or poor soils should not be greatly reduced, however, unless proper soil management and fertilization are given.

Thinning

A. Wait until after the June drop is well over before starting your thinning operations and then spend most of your energies and money allotted for

thinning on those varieties which normally show the greatest benefit from thinning.

B. Do not attempt to thin to any uniform thinning distance as for instance 6, 8, or 10 inches apart but thin the individual trees and limbs on the tree depending upon their crop. Recent experimental evidence indicates that from 30 to 40 leaves per apple are necessary for the production of fruit of good size and color. Recent evidence also indicated that the elaborated materials formed by the leaves will benefit apples at quite some distance away. This shows that fruit need not be heavily thinned on certain limbs if other limbs have light crops or that all clusters at least in the case of many varieties need not be separated if the crop is otherwise light on the limb and tree.

General Considerations

So far I have been discussing ways to reduce the cost of the main production operations, but it should be clearly evident to all that it would be disastrous to reduce all of these operations the same year. This would be especially true in this section which has suffered from drought during the past two years. If less cultivation, less pruning, less fertilization and less thinning are all given, a high percentage of fruit of good size and good color cannot be expected. These practices, properly performed all contribute to the production of excellent fruit. How much you should reduce or cut out any practice will depend on how much you plan to reduce the others. For instance, if you change your soil management practice, so that less water and nitrates will be available to each fruit, then competition between fruit must be reduced through pruning or thinning. Likewise if pruning and thinning are eliminated this year then good soil management and fertilization must be given. Of course, the amount that any or all of these practices can be reduced will vary with the soil conditions and vigor of the individual orchards. Don't do what your neighbor does necessarily. Diagnose your own case and if in doubt consult with your county agent and extension, college and station specialists. Remember these statements of mine are only general suggestions based in part on experimental evidence and in part on general observations. If the good growth conditions now prevailing in some orchards and especially with certain varieties have resulted or aided in securing annual crops, it would be highly undesirable to reduce all orchard practices to such an extent that growth would be seriously checked and the orchard become biennial in bearing.

Spraying

A. I hardly see where much reduction in the spraying cost can be eliminated. Leaves and fruit must be kept free from attacks of insects and fungous diseases. Blemished fruit does not pay for its cost of production.

Instill interest and pride in your working staff

A. By this means, fruit will be handled more carefully. Big losses occur from rough handling during picking and grading and later in storage.

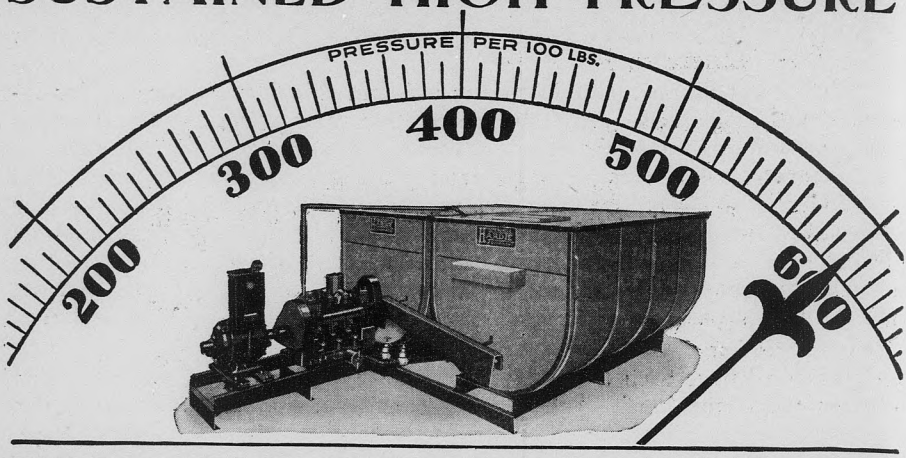
B. Use picking tickets to check the workers.

C. Piece work or paying a certain price per bushel for picking instead of a flat price per day should speed up harvesting and reduce the harvesting costs.

Packing

This must be kept on a high standard. The only way to reduce this cost is through better packing house organization and management.

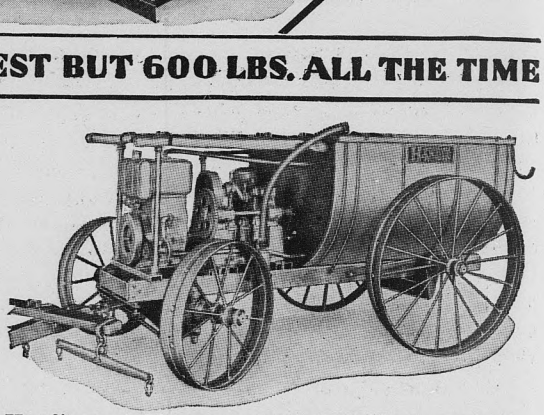
SUSTAINED HIGH PRESSURE



NOT 600 LBS. ON TEST BUT 600 LBS. ALL THE TIME

When you shop for a sprayer find out how much it is going to cost per year. When you buy a Hardie sprayer you get long life, plus unqualified assurance of real high pressure per square inch for any stated capacity in gallons per minute, and stamina in design and construction that makes for a long, long life—years not months—of dependable service.

Hardie, as always, delivers the rated gallonage at the high pressure necessary to a quick, thorough, economical coverage. The Hardie 35-gallon sprayer delivers 35 gallons per minute at 650 pounds; the Hardie 16-gallon at 500 pounds; the Hardie 12-gallon at 450 pounds; the Hardie 9-gallon at 400 pounds, and the Hardie 6-gallon at 350 pounds. Hardie ratings are specific, plain and GUARANTEED FOR LONG CONTINUOUS RUNS, not merely for exhibition purposes.



Hardie portable sprayers embody the most advanced engineering. Light draft, big power plants, pumps that never fail. These outfits are built in all capacities from 6 to 35 gallons per minute operating at pressures from 300 to 650 pounds per square inch.

Hardie stationary outfits in all capacities from 6 to 35 gallons are setting the pace for the centralized sprayer plant movement which is rapidly gaining ground in apple and citrus sections. Hardie quality is vividly apparent here where the pump must run hour after hour without attention.

The Hardie Manufacturing Co.
Hudson, Michigan **Hagerstown, Maryland**

HARDIE DEPENDABLE SPRAYERS

Equipment

It would seem desirable that growers should attempt to get along for the coming year with such equipment as they now have unless such equipment is entirely worn out.

In summary, I would say that poor varieties, poor blocks and poor individuals should be eliminated. After this is done we must remember that quality fruit is demanded. Some of the factors that influence orchard sales to the consumer are, (1) quality, (2) color, (3) uniform size (4) price, (5) freedom from bruises, (6) variety and (7) freedom from disease and insect injury. We must, therefore, have good, clean, well-colored fruit. We know that we need a high yield per acre in order to reduce the cost per bushel. You must, therefore, study your own conditions and determine how far you should go in reducing your soil management, pruning, fertilization and thinning practices and still secure good crops of high quality fruit. Surely the fruit which is produced must be well sprayed, carefully handled, properly packed in the most desirable packages, advertised well and merchandized properly if you are to compete with other regions in this and other countries.

THE 1931 STRAWBERRY MARKET

In a recent circular, "Marketing Eastern Shore Strawberries," issued by the Market News Service, U. S. Bureau of Agricultural Economics, January, 1932, a summary of the 1931 strawberry deal is given.

The acreage for 1931 in Eastern Shore Maryland was about 6,080 or 36% less than the 1930 and less than half the 1928 acreage. The average yield was 60 crates (24 quarts) per acre or 1 cent per acre above the average for the intermediate season states. Commercial production for Eastern Shore Maryland was about 365,000 crates, or about 133,000 crates less than in 1930. This section shipped 353 carloads and 440 truckloads (100,371 crates) of berries in 1931. The heaviest shipments (18 cars or more daily) were from May 27 to June 9. Most of the berries going by railroad were marketed in Connecticut, Maine, Massachusetts, New Jersey, Pennsylvania and Rhode Island, while truck shipments went mostly to Baltimore; Washington, Newark, N. J.; Boston; New York, Philadelphia and the remainder to other cities in Connecticut, New Jersey, New York and Eastern Pennsylvania.

Prices at shipping point ranged from $1.50 to $7.00 per 32-quart crate, depending upon variety, season and point of sale.

Strawberry growers should write the Bureau of Agricultural Economics, U. S. Department of Agriculture, Washington, D. C., for a copy of this circular.

At the present time, there is an excellent outlook for the 1932 strawberry crop in Eastern Shore, Maryland, if weather continues favorable, and insects do not become too active.

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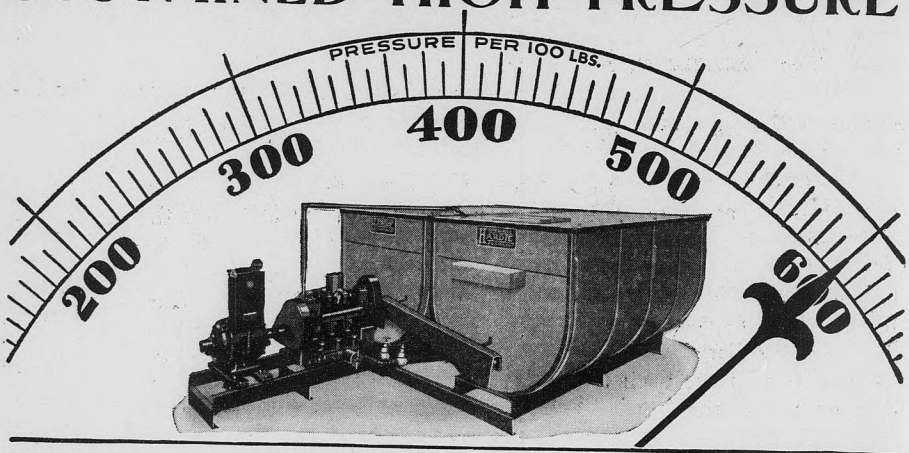

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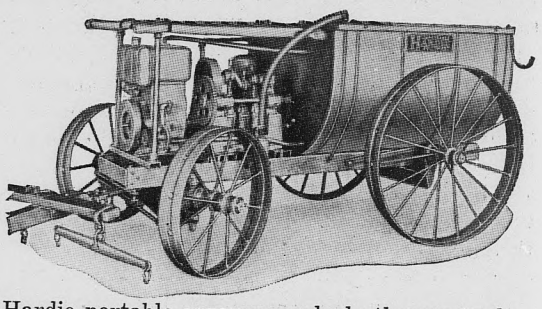

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Let Fertilizer Help Your Orchards to Pay

That orchards need complete fertilizer is shown by the following statement of Prof. J. F. Watson, Virginia P. I., in a recent issue of "VIRGINIA FRUIT":

"Those blocks in our experimental orchards that have received complete fertilizer for the past 10 years are now outgrowing and outyielding other blocks. This is explained by the greater amount of organic matter produced and eventually added to the soil" . . .

In addition to adding large amounts of organic matter, recent experiments indicate that clover and alfalfa, being deep-rooted, may take phosphorus and potash from the surface soil, where they are usually absorbed, to the lower root zones of fruit trees. Both clover and alfalfa need liberal amounts of phosphorus and potash to make a satisfactory growth.

Join the rapidly growing number of progressive orchard owners who are increasing their profits by using at least 500 pounds of complete fertilizer per acre as follows:

LEGUME SODS: 2-8-10 or 0-10-10 fertilizer

MIXED SODS: 4-8-7

GRASS SODS: 7-6-5

WHEN SEEDING: 2-8-10 or 4-8-7 (Lime as needed)

Your local fertilizer man can supply you the above fertilizers at a reasonable price. Place your order with him today.

N. V. Potash Export My, Inc.

OF AMSTERDAM, HOLLAND

Baltimore Trust Building, **Baltimore, Maryland.**

DR. J. H. BEAUMONT

A NEW EXECUTIVE

On March 1, Dr. C. E. Auchter retired as active Head of the Horticultural Department at the University of Maryland, which position he has held since 1918. His position embraced the administration of teaching and research work in horticulture, and under his guidance, Maryland horticulture in all its phases has made great progress. He is well known as a friend and advisor of practically every grower in Maryland. His investigations and results in horticultural research have been nationally outstanding. Dr. Auchter has enjoyed an enviable reputation and has left a definite mark in Maryland's horticultural development. He has assumed his new duties as Principal Horticulturist in Charge, in the Division of Horticultural Crops and Diseases, U. S. Department of Agriculture.

He is succeded in Maryland, by Dr. J. H. Beaumont, recently Head of the Horticultural Department at the University of North Carolina, Raleigh, North Carolina. Dr. Beaumont comes to Maryland, highly recommended. He is a graduate of West Virginia University, received his Doctor's degree at the University of Minnesota, and has had graduate work at Cornell and the University of Chicago. Through his research investigations he has contributed many excellent papers and bulletins to horticultural literature. He is a member of several honorary, scholastic, and research societies. Dr. Beaumont is a practical man, and knows intimately the grower's problems. We feel fortunate in securing him for carrying on the horticultural work in Maryland and we are sure that the growers will find him a real friend and a good cooperator.

"BEAN"

The Low-Speed, High Efficiency Sprayer

A Sprayer for Every Need

TEN SIZES

FIFTY-ONE DIFFERENT MODELS

5 1-2 to 60 gallons per minute

Pressure up to 600 pounds

Quality and Design Improved

Prices Reduced.

Just the outfit to put behind the new

Bean Fog Drive Gun

Lupton Orchard Service Co.

McSherry Lupton, Prop.

Winchester, Virginia

Telephones, Winchester 1100 and 1101

JUST AMONG OURSELVES

A. F. Vierheller, Extension Horiculturist

A REPORT FROM GEORGIA

According to reliable reports, March 7, the peach buds in South Georgia were almost in full dormant condition. This seems undoubtedly to be caused by the usually mild winter weather, so that the rest period of the buds was not broken.

* * *

UNIFORM ROOT STOCKS

Probably one of the greatest factors in fruit production is the condition of roots on our fruit trees. Every grower has experienced the loss of trees or the presence of weak trees in the orchard. Root rot, winter injury, woolly aphis, gall, and low vigor are but a few of the troubles on weak roots.

At present the U. S. Department of Agriculture working with several State Experiment Stations, is investigating the value of certain known stocks and also of several new methods of propagation that may result in better trees in our orchards of the future.

* * *

IT SEEMS TO PAY

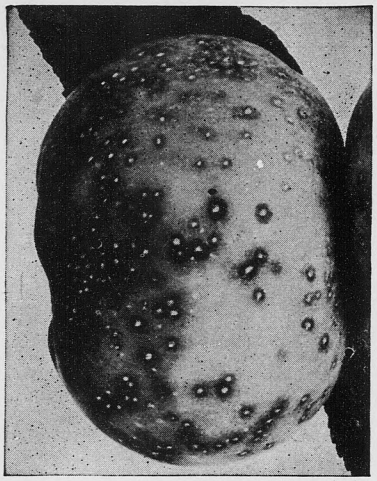
Most growers have adopted thinning as a regular practice. They feel that it is of value to the fruit and tree, but few have any figures to show the actual benefit. "Wisconsin Horticulture," January, 1932, reports that Mr. R. L. Evarts, a prominent Michigan apple grower, stated that he received two and one-fifth times as much for fruit from thinned trees as from unthinned trees. In other words, his thinned fruit gave added profit of nine cents per bushel after deducting thinning costs. He spent $560 for thinning labor and increased the value of the crop by $2,000. Average thinning cost per large tree was 60 cents. The results were figured by comparing costs and receipts from thinned and unthinned trees.

Every Product Advertised in

"The Maryland Fruit Grower"

is now used in MARYLAND ORCHARDS

Read every Ad and Patronize our Advertisers



Danger Threatens from San Jose Scale

This insect increases quickly and State Experimental Stations are warning fruit growers to control San Jose scale this season by a dormant or delayed dormant spray.

Progressive growers who do not want scale-specked fruit, will appreciate this advice and get effective control of this dangerous scale insect by using low cost

DENDROL

Dormant Spray Oil

1. America's Scientific Miscible Oil.
2. Developed in cooperation with the Crop Protection Institute.
3. Endorsed by experiment stations in all sections of the Country.
4. An easy flowing liquid oil—not a paste form.
5. Costs less to use—two gallons with 98 gallons of water gives high control of San Jose scale—see special note.
6. Give high control of redmite.
7. A delayed dormant spray kills aphids.
8. Controls scurfy scale, oyster shell scale, cherry case bearer, etc.

SPECIAL NOTE

In the worst San Jose scale infested area in the United States

DENDROL

has proven its effectiveness (using 2 gallons to 98 of water) during five years of actual field tests, by showing 99.4% to 100% kill.

Ask Your Dealer for a FREE COPY of this illustrated booklet or write to

DENDROL
Dormant Spray Oil
An Improved Miscible Oil for Dormant and Delayed Dormant Spraying of Fruit and Shade Trees and Shrubbery.

MOORE & MUNGER

33 RECTOR ST. NEW YORK CITY

New Bean Gun Fig. 789

THE FIRST SCIENTIFICALLY DESIGNED GUN

With this gun the passage of liquid is in its most desirable condition, under high pressure and thoroughly atomized, through a waterway of correct size and shape.

This offers lightest weight, less internal friction, greatest economy, maximum driving power and excellent coverage to the most distant parts, with less labor and longer life.

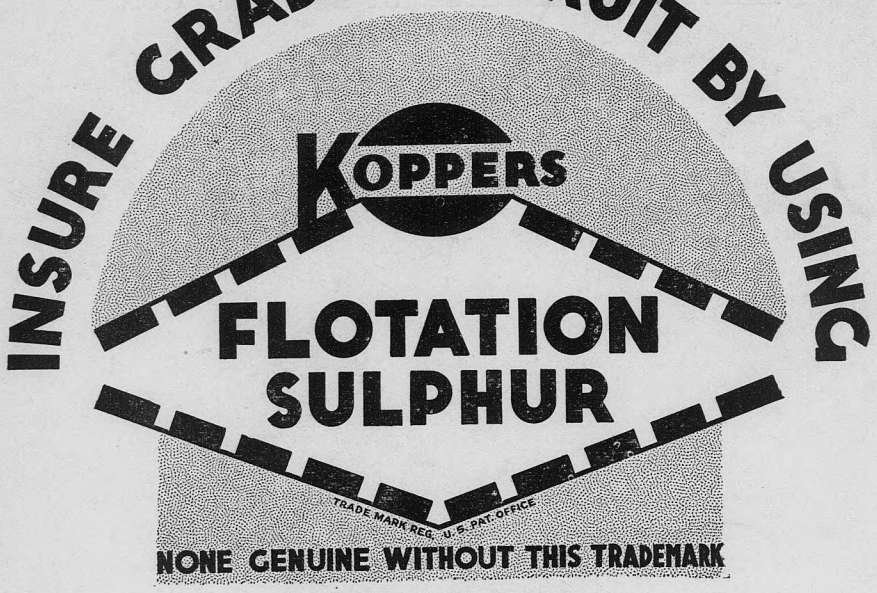
JOHN BEAN MFG. CO.

Division Food Machinery Corporation

Lansing, Michigan

San Jose, California

INSURE GRADE "A" FRUIT BY USING



NONE GENUINE WITHOUT THIS TRADEMARK

Available in these forms:

1 KOPPERS FLOTATION SULPHUR PASTE

has been standardized and pre-creamed at a central mixing plant. Guaranteed to mix easily and stay in suspension with the slightest agitation.

2 KOPPERS DRY WETTABLE FLOTATION SULPHUR

A new and improved form, possessing the same fungicidal properties as the paste, with the advantage of being more easily handled.

3 KOPPERS BLENDED FLOTATION SULPHUR DUST

Ask your dealer for this superior non-balling dust, make by blending Koppers Flotation Sulphur with ordinary ground sulphur dust.

EFFICIENT . . . . . ECONOMICAL
GUARANTEED

Write for descriptive literature and prices.

KOPPERS PRODUCTS CO.

Pittsburgh **Pennsylvania**